

the courtesy and hospitality for which he has been eminently distinguished, and which makes a forcible and delightful impression on a traveller from the long wilderness from which we had issued. . . . but every hospitable attention was extended to me, and I accepted an invitation to take a room in the fort, "and to make myself at home while I staid."

The plants collected by Fremont were described by Dr. John Torrey in 1854 in a volume of the *Smithsonian Contributions to Knowledge* and also in Fremont's report.

This account could easily be lengthened by quoting records of other acts of hospitality administered by the well-known Chief Factor of the Hudson's Bay Company. Also, it could be pointed out that McLoughlin's employees, particularly the medical doctors of the Fort, made important discoveries in botany and natural history. Their books constituted the first science library in the Pacific Northwest. However, another important contribution of McLoughlin to science must not be overlooked; his control over the native Indians which made the wild forests relatively safe for the pioneer scientific explorers.

Dr. McLoughlin, as supreme ruler of the Pacific Northwest, was a strict disciplinarian who combatted Indian crimes with stern justice. H. H. Bancroft in his *History of the Northwest Coast* described McLoughlin's unusual influence over the savage mind. Before McLoughlin's time it was not safe to travel far except in armed bands. After McLoughlin's time as Chief Factor, the history of the Pacific Northwest is marked by brutal massacres and bloody Indian wars which took the lives of many white settlers. However, Bancroft pointed out that McLoughlin:

. . . achieved by his wise and humane policy a bloodless revolution, savage foes metamorphosed into steadfast friends, a wilderness teeming with treachery into a garden of safe repose.

While much has been written of McLoughlin and thousands of people each year visit his historic home, his contributions to the sciences, particularly the botany, of the Pacific Northwest have been entirely ignored by historical writers. September 3, 1957, marked the centennial of the death of the once mighty ruler of the Oregon Country and it is proper that the scientific world take slight note of a great friend.

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REVIEWS

Native Plants for California Gardens. By LEE W. LENZ. ix + 166 pp., frontispiece (color photograph), 100 halftone illustrations. 1956. Published by Rancho Santa Ana Botanic Garden. For sale at Abbey Garden Press, Pasadena, California. \$3.85.

According to the foreword: "This book is the outgrowth of a series of papers devoted to the botany and horticulture of California plants, published as the Leaflets of Popular Information by the Rancho Santa Ana Botanic Garden. An attempt has been made to select from the native flora those species which can be recommended as of value to gardeners, described them in simple language and giving their cultural

requirements as well as suggested uses in California landscaping and gardening. In order to make the identification of the plants easy for those not already familiar with them, the majority of the species are illustrated."

Four chapters set the background for the body of the book. These treat respectively the uniqueness and diversity of the California flora, early collectors, landscaping uses of natives, and procedures in garden culture. Of the four, unquestionably the information in the first chapter is the most basic for anyone not already intimately acquainted with the topography, climate, soils, and major plant communities of California. Nowhere is it more true than in transferring native plants from their indigenous environment to the artificial conditions of a garden that, "For what we obtain of *Nature*, we must not do it by commanding, but by courting of her." Although considerable information is presented, even more could have been included in the first chapter with profit.

The second chapter surveys botanical and horticultural collectors of the period 1769 to about 1906. Some readers will appreciate this information, some will pass it over. On the horticultural side one wishes the period might have been extended to the date of publication in order to have included several pioneer collectors who should not be omitted in any history of the introduction of natives to California.

The third chapter is largely a tabular cross-index to the landscape uses of those plants which are discussed in detail later in the book.

The fourth offers recommendations on propagation and handling. It is written especially for the person who is unfamiliar with both general techniques of propagation and the particular plant materials. The author has chosen to meet the needs of such a gardener by being concrete and specific rather than by developing general principles in greater detail. As with any approach there are advantages and disadvantages. Much of the data on plant materials in this chapter is a recapitulation of the information on propagation given under each species in the body of the book.

The body of the book is a formal treatment of 101 species with generous references to additional related ones. Most of the species selected are ornamentals although a few, such as *Aristolochia californica* and *Chorizanthe staticoides*, are curiosities or have only limited horticultural values. Some 50 per cent are shrubs, 35 per cent annuals and perennials, and the remaining 15 per cent are equally distributed between trees, vines and bulbs. Nearly four-fifths of the shrubs and a third of the other species are limited to the southern part of the state in natural occurrence. The caption of each species treatment includes not only scientific and common name but a figure representing maximum height — a very helpful position for this information. The material itself is organized under: Description, Distribution, Propagation, Flowering (omitted for annuals and perennial herbs), Uses, and comments (no heading). The description is botanical, that is, for identification, rather than horticultural for characterization. Distribution is stated briefly, propagation expanded. While uses refer to landscape uses, in some cases recommendations as to where in California the plant can or cannot be grown are included. The only pertinent topic one misses in the treatment of species is that of natural associates, for natives are grown most conveniently with other natives; however, some glimpse of associates will be found in the introductory chapter on the California flora. Excellent black and white photographs, chiefly the work of M. and M. Carothers, accompany the section. The author is to be congratulated on not having followed any slavish plan in the illustrations, but of letting the nature of the plant dictate how it could be portrayed most effectively.

Even though the brief literature list at the end of the book is not intended to be exhaustive, it indicates how little has been written in this field and how grateful the reader can be for the present contribution. The only serious omissions in this list are the two excellent volumes of Lester Rowntree, "Hardy Californians" (1936) and "Native California Shrubs and Their Value to the Gardener" (1939).

"Native Plants for California Gardens" takes its place on the gardener's reference shelf as the first book on California natives in the encyclopedic style, the first predominantly on natives of and for southern California, the first effort to compile

and coördinate experiences of the staff of the Rancho Santa Ana Botanic Garden of native California plants (formerly located at Santa Ana, now at Claremont, California) into one handy volume for the interested public. It presents a large amount of information in readily accessible, clearly organized form and is enhanced by excellent illustrations.—HELEN-MAR WHEELER, Department of Botany, University of California, Berkeley.

Plant Classification. By LYMAN BENSON. xiv + 688 pp., 399 illustrs. 1957. D. C. Heath and Company, Boston. \$9.00.

This is a notably handsome book. The nearly 400 illustrations, including serviceable diagrammatic sketches by the author, beautifully conceived and executed analytical representations of plant families by the talented late Jerome D. Laudermilk, and well chosen photographs of natural vegetation, occupy approximately as much space as the text.

The bulk of the text (more than 300 pages) is devoted to a systematic treatment of the vascular plants—dicotyledons, monocotyledons, gymnosperms, and pteridophytes, in that order. All 80 orders of living vascular plants recognized here are keyed, as are the 332 families accepted. Chief emphasis is placed upon dicotyledons, for which the author has perfected a new five-fold system stated to be based upon "relationships" but not "purported phylogeny." The principal groups are Thalamiflorae, Corolliflorae, Calyciflorae, Ovariflorae, and Amentiferae; "the Amentiferae appear to be mostly an artificial group, and they are retained as a unit because their relationships still are not settled . . . the other four are more natural than artificial." The author believes that students should build their understanding of plant relationships around a concept of how close, or how far removed, the plant in question is from the Ranales. His groupings are designed to facilitate the development of such a concept.

Each synopsis of a class of plants appears under the heading, "The Process of Identification"; it is preceded by one or more chapters entitled, "The Vocabulary Describing . . . Characteristics," which is an illustrated résumé of the gross morphology of the particular group. This feature is strikingly reminiscent of Gray's classical "Lessons in Botany," and gives especial appropriateness to the beautiful photograph of "the father of North American botany," clad in field clothes, which serves as frontispiece.

After the encyclopaedic description of each class, there follows one or more chapters on "The Basis of Classification," which comprise a rather mixed assortment. Under angiosperms there is a chapter on "Evolution," consisting largely of a formal justification of the theory, and there is also a short section on "The Development of New Taxa"—by differentiation and isolation. Further chapters discuss "Some Fundamental Problems of Plant Classification" (method of segregating taxa, relative stability of characters), a sketch of the history of plant-classification systems, a comparison of the more recent schemes, and an exposition of the bases of the system adopted by the author.

This last chapter, summarizing the work of I. W. Bailey and his associates and students as evidence for the primitiveness of Ranales, is very promising, but its effect is considerably subdued by its relegation to pages 475 to 486. Moreover, the retention of the undoubtedly artificial and reduced "Amentiferae" as a group and of such features as a wholly artificial arrangement of fruits (based upon "fleshy" vs. "dry") and of the term "pistil," which is difficult to homologize with the evolutionary modification of megasporophylls into carpels, as discussed elsewhere in the volume, further diminish the impact.

The living gymnosperms are divided among four classes: Conopsida, Ephedropsida, Gnetopsida, and Cycadopsida. Their classification, apparently based upon a résumé of their presumed geological history, contains no reference to the work of either Sahní or that of Florin. The pteridophytes are treated similarly.